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## PATENT ABSTRACTS OF JAPAN

(11)Publication number : 01-265937

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(51)Int.Cl.

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A61B 3/10

(21)Application number : 63-059818

(71)Applicant : TOPCON CORP

(22)Date of filing : 14.03.1988

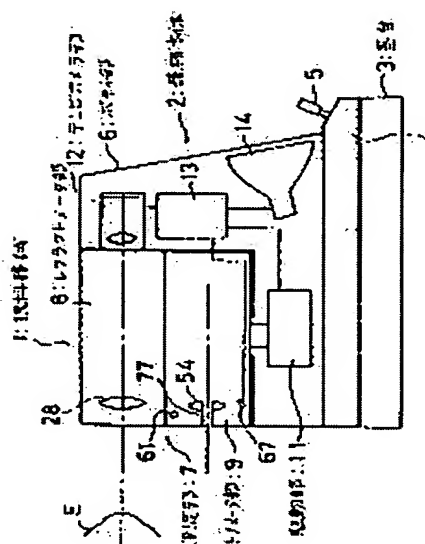
(72)Inventor : KATSURAGI KENJIRO

## (54) OPHTHALMOLOGIC INSTRUMENT

## (57)Abstract:

**PURPOSE:** To allow a single device to measure intraocular pressure and the refraction characteristic by allowing fluid to flow to an eye to be inspected, measuring the intraocular pressure, projecting an index onto the eyeground, and measuring the change in the produced image.

**CONSTITUTION:** An ophthalmologic instrument 2 has a body 6 and a measuring part 7. This measuring part 7 consists of a refractometer 8 to measure ocular refraction and a tonometer 9 to measure the intraocular pressure, and these two meters 8, 9 are placed one over the other. The refractometer 8 projects an index onto the eyeground of an eye to be inspected E and measures the refraction characteristic of the eye to be inspected E on the basis of changes in the index image reflected by the eyeground. The tonometer 9, on the other hand, releases fluid to the eye E and measures the intraocular pressure contactlessly by means of deformation of the eye E.



## LEGAL STATUS

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# PATENT ABSTRACTS OF JAPAN

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A61B 3/16

(21)Application number : 09-137527

(71)Applicant : NIDEK CO LTD

(22)Date of filing : 12.05.1997

(72)Inventor : YOSHIDA MAKOTO  
NAKAO MUNEHISA  
SUZUKI NOBUO

(30)Priority

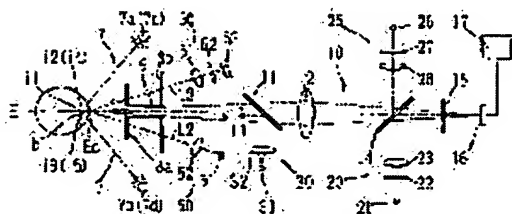
Priority number : 08188564 Priority date : 28.06.1996 Priority country : JP

## (54) OPHTHALMOLOGICAL DEVICE

(57)Abstract:

PROBLEM TO BE SOLVED: To widen a detection range and to easily perform alignment by providing a projection optical system for projecting plural alignment indexes around the cornea and a detection optical system for detecting a projected index image.

SOLUTION: In a first alignment index projection optical system 30, a luminous flux mirror-surface-reflected at the cornea Ec forms an index i1 which is the virtual image of a light source 31. A second alignment index projection optical system 7 is provided with the four light sources 7a-7d and light from the light sources 7a and 7b is irradiated from an upper side direction toward the periphery of the cornea of an eye to be tested and forms the indexes i2 and i3 which are the virtual images of the light sources 7a and 7b. Also, the light from the light sources 7c and 7d is irradiated from a lower side direction toward the periphery of the cornea of the eye to be tested and form the indexes i4 and i5 which are the virtual images of the light sources 7c and 7d. Then, the luminous fluxes of the indexes i1-i5 are made incident on a CCD camera 16 through an observation optical system 10 serving also as an index detection optical system for detecting the indexes for first and second alignment and form images on an image pickup element.



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